

STATEMENT OF CRAIG BEARD, DIRECTOR, OFFICE OF AIRWORTHINESS,
FEDERAL AVIATION ADMINISTRATION, BEFORE THE SENATE COMMITTEE ON
COMMERCE, SCIENCE, AND TRANSPORTATION, SUBCOMMITTEE ON
AVIATION. NOVEMBER 9, 1983.

Madam Chairman and Members of the Subcommittee:

I am Craig Beard, Director of the FAA's Office of Airworthiness. With me today are Dr. Jon Jordan, the FAA's Deputy Federal Air Surgeon, and Mr. Thomas McSweeney, Acting Manager of the Aircraft Engineering Division. We are pleased to appear before the Subcommittee again on the subject of air quality standards of aircraft.

When we appeared before the Subcommittee last May to offer the FAA's views concerning S. 1770, which is identical to S. 197, we indicated our belief that the ventilation systems of transport aircraft are fully adequate. We continue in that view. As you may recall, FAA regulations require that passenger and crew compartments must be suitably ventilated and fuel fumes may not be present. The regulations also specify a maximum carbon monoxide concentration of one part in 20,000 parts of air. While ventilation, as might be expected, varies to some extent from one type of aircraft to another, aircraft flow rates exceed the guidance material for passenger transport aircraft developed by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE). The

flow rates of aircraft compare favorably with recommended standards for non-aviation environments.

With respect to the Subcommittee's interest in focusing on the possible transmission of airborne bacteria in an aircraft environment, we are not aware of any problems unique to aircraft which should be accommodated by changes in ventilation requirements. In fact, we are only aware of one documented case in which influenza was spread in an aircraft cabin environment, and that occurred, as the Subcommittee is aware, under a set of unusual conditions unrelated to the adequacy of the ventilation system.

The Subcommittee is also interested in looking into the issue of venting smoke from an aircraft cabin in the event of a fire. As indicated to you last May, the FAA has an ongoing research effort in this area. Our research program is designed to develop a smoke generation and measurement technique which can be used for testing of smoke evacuation of aircraft cabins. The test methodology being developed by the FAA will enable us to more realistically simulate smoke characteristics and to accurately measure smoke venting from a cabin environment. This will permit the FAA and industry to better evaluate the effectiveness of ventilation and smoke evacuation systems and to work on optimizing their design. We expect this research program to be completed this Spring.

The Subcommittee has also expressed interest in cigarette smoking aboard commercial aircraft. In 1971, a study of the health aspects of smoking in transport aircraft was conducted jointly by the FAA and the Public Health Service. The purpose of the study was to define the levels of certain combustion by-products of tobacco produced by passengers' smoking; to determine passengers' subjective reaction to tobacco smoke; and to obtain passenger opinion on the need for regulatory change regarding the control of smoking in commercial passenger airplanes.

The study involved the collection of samples to determine the environmental exposure levels to carbon monoxide, particulate matter, polynuclear hydrocarbons, ammonia, and ozone. The environmental sampling revealed very low levels of each contaminant measured; in fact, they were much lower than those recommended in occupational and environmental air quality standards.

These combustion products were judged not to represent a hazard to the nonsmoking passengers, based on environmental levels and expected dosage-response relationships of contaminants. A significant proportion of the nonsmokers, however, did indicate they were bothered by tobacco smoke and suggested that corrective action be taken such as segregating smokers from

nonsmokers. Over 70% of the nonsmokers with history of respiratory conditions expressed annoyance by tobacco smoke.

Research continues to be performed on the health effects of "passive" smoking. To date, there is no evidence of an increased incidence of cardiovascular disease in passive smokers. There has been some evidence of physiological pulmonary changes in passive smokers, but this research has been questioned by others. Research in long term exposure such as in nonsmoking wives of heavy smokers may indicate that the wives have a higher risk of lung cancer.

I am advised that, based on these and other studies, it is the FAA's view that casual exposure to "second hand" cigarette smoke in a reasonably ventilated environment is not expected to have any relation to cardiovascular or pulmonary disease causation. The possibility of passengers' annoyance to smoke is, of course, a different issue which, I might add, is currently being explored in a rulemaking action by the Civil Aeronautics Board. Therefore, from a health perspective, we have seen no need to require changes in aircraft ventilation systems.

That completes my prepared statement, Madam Chairman. We would be pleased to respond to questions you may have at this time.